IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant:	Masanari YOKOGAWA et al.
Title:	SEMICONDUCTOR WAFER TREATMENT MEMBER
Appl. No.:	10/603,781
Filing Date:	06/26/2003
Examiner:	Luz L. Alejandro
Art Unit:	1763
Confirmation No.:	4070

AMENDED BRIEF ON APPEAL

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Sir:

The following is the Appellant's Brief, submitted under the provisions of 37 C.F.R. 41.37(d), and is in response to the Notification of Non-Compliant Appeal Brief dated October 25, 2006. This Amended Brief on Appeal replaces the Brief on Appeal filed on August 4, 2006. The fee required by 37 C.F.R. 41.20(b)(2) has been previously paid in the Appellant's Brief filed August 4, 2006. If this fee is deemed to be insufficient, authorization is hereby given to charge any deficiency (or credit any balance) to the undersigned deposit account 19-0741.

REAL PARTY IN INTEREST

The real party in interest is Toshiba Ceramics Co., Ltd. of Japan, which is the assignee of record of the present application.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

STATUS OF CLAIMS

Claims 1, 2, 4, 5, and 7 were subject to the Final Rejection, and all claims are the subject of this appeal. Claims 3 and 6 are cancelled. Claim 1 is the independent claim.

STATUS OF AMENDMENTS

An amendment was filed on May 4, 2006 in response to the Final Rejection. The amendment was not entered because it is alleged that they raise new issues that require further search and/or consideration.

SUMMARY OF CLAIMED SUBJECT MATTER

The present invention relates to a semiconductor wafer treatment member having at least a surface formed with a silicon carbide (SiC) film thereon. (Page 8, lines 25-27.) The semiconductor wafer treatment member comprises a support portion for supporting a semiconductor wafer, which is composed of salients with which the semiconductor wafer substantially comes into contact and depressions formed with the silicon carbide (SiC) film to provide a coverage area between said salients. (Page 8, line 27 to Page 9, line 3.). The salients are formed with upper faces having a surface roughness Ra of 0.05 μm to 1.3 μm. (Page 9, lines 23-24.) The depressions have faces having a surface roughness Ra of 3 μm or more when measured for a length of 300 μm. (Page 10, lines 8-11).

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The following grounds of rejection that are set forth in the final Office Action are to be reviewed on appeal:

(1) the rejection of pending claims 1-2, 4-5, and 7 under 35 U.S.C. § 103(a) over U.S. Patent No. 5,460,684 to Saeki et al. (hereinafter "**Saeki**");

(2) the rejection of pending claims 1-2, 4-5, and 7 under Section 103(a) over U.S. Patent 5,200,157 to Toya et al. (hereinafter "**Toya**") in view of the prior art in (1) above; and

(3) the rejection of pending claim 1-2, 4-5, and 7 under Section 103(a) over U.S. Patent Application Publication 2004/0060512 to Waldhauer et al. (hereinafter "**Waldhauer**").

ARGUMENT

I. Rejection under 35 U.S.C. § 103(a) as being unpatentable over in view of Saeki.

Saeki does not disclose, teach, or suggest a support portion composed of salients having a surface roughness Ra of 0.05 μm to 1.3 μm and depressions having a surface roughness Ra of 3m or more when measured for a length of 300 μm.

The surface roughness values of 0.1 to 1.5 microns disclosed by Saeki merely concerns the overall roughness of the resistive layer 3. In other words, this surface roughness is the surface roughness of irregularities or undulations formed on the whole surface of the resistive layer 3.

For clarification between Saeki and claim 1 of the present application, reference is made to the figures below. In those figures, the surface roughness as defined in claim 1 of the present invention is a surface roughness of each salient and each depression. In other words, the upper faces of the salients have a certain surface roughness and the faces of the depressions have a certain surface roughness. Claim 1 of the present invention separately defines both the surface roughness of the upper faces of the salients and the faces of the depressions. Because the surface roughness of the salients and the depressions are separately defined, the surface roughness of claim 1 of the present invention is completely different from the surface roughness disclosed by Saeki. Thus, Saeki does not disclosed the surface roughness as defined by claim 1 of the present invention.

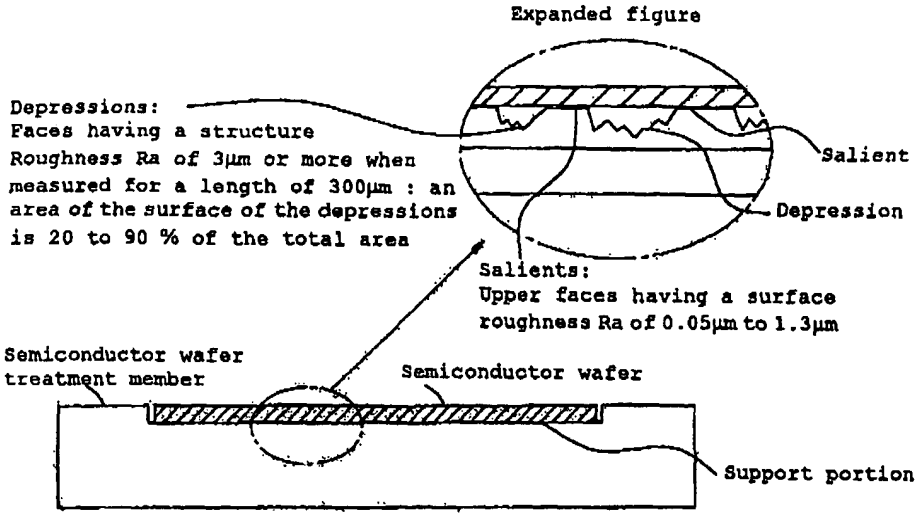

FIG. 1: A Side View of the Present Invention

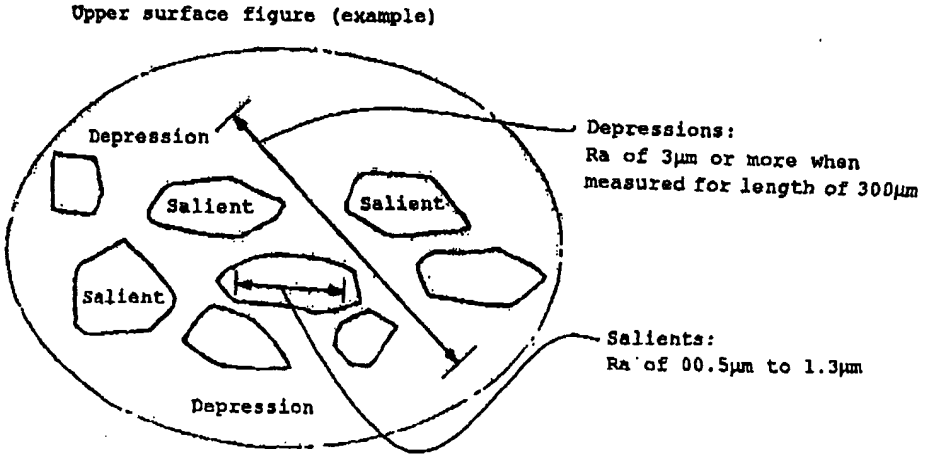

FIG. 2: A Schematic View of a Surface of the Present Invention

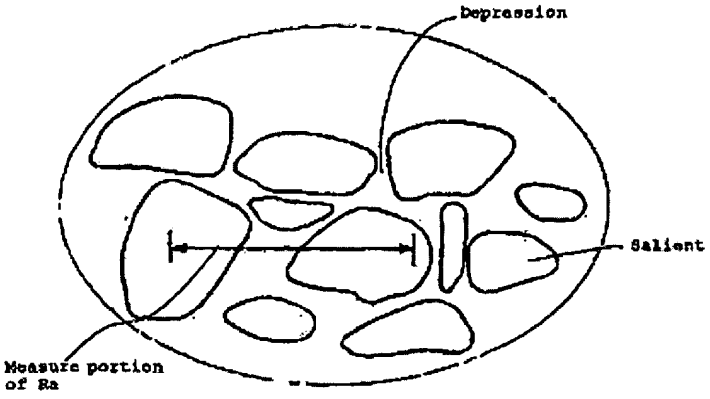

FIG. 3: A Schematic View of a Surface from the Art Disclosed in Saeki.

In addition, Saeki does not disclose, teach, or suggest the claimed surface roughness of the depressions. The PTO merely maintains that it would have been obvious to one of ordinary skill in the art at the time the invention was made to determine through routine experimentation the roughness of the depressions based on a variety of factors including the desired degree of adhesion to the wafer.

To establish a case of prima facie obviousness, MPEP 2143 states:

> To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations....The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

In the present case, the PTO has failed to satisfy the first and third criteria. As to the third criteria, the PTO has not found any reference for the teachings of the claimed surface roughness of the depressions.

As to the first criteria, the PTO relied upon the assertion that one with ordinary skill in the art would be motivated to determine, through routine experimentation, the optimum coverage ratio and surface roughness of the depressions based on the desired degree of adhesion to the

wafer and a variety of other unspecified factors. This assertion is contrary to case law and the MPEP. According to the MPEP 2144.05: "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). In this case, there has been no establishment in the prior art of the general conditions, i.e., that the surface roughness of the depressions is different from the surface roughness of the salients. Thus, one cannot be motivated to find an optimum range for a condition that has not even been disclosed. Therefore, the reliance on finding optimum conditions through routine experimentation is misplaced.

Also, the PTO has provided no teaching from the prior art on how adhesion or any of the unspecified factors relate to the surface roughness of the depressions. This position is clearly contrary to the case law and MPEP 2144.05, which states: "A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977)." In this case, the PTO has not pointed to any prior art to support the proposition that the surface roughness of the depressions is a variable that effects adhesion or anything else. Because the PTO has not established that the surface roughness of the depressions is a result-effective variable, the use of the argument that one would be motivated to find the optimum ranges for the surface roughness of the depressions to determine the best adhesion is misplaced.

Because the argument of finding optimum ranges through routine experimentation is inapplicable in this case and no other motivation has been provided for determining the claimed surface roughness of the depressions, the PTO has failed to satisfy the third criteria for establishing a prima facie case of obviousness.

For at least these reasons, reconsideration and withdrawal of the rejection are respectfully requested.

II. Rejection under 35 U.S.C. § 103(a) as being unpatentable over in view of Toya and Saeki.

Toya, Saeki, or any combination thereof does not disclose, teach, or suggest a support portion composed of salients having a surface roughness Ra of 0.05 μm to 1.3 μm and depressions having a surface roughness Ra of 3 μm or more when measured for a length of 300 μm. Toya teaches a surface roughness that is the surface roughness of the whole surface of body 2. In other words, this surface roughness is the surface roughness of irregularities or undulations formed on the whole surface of body 2.

The surface roughness as defined in claim 1 of the present invention is a surface roughness of each salient and each depression. Because the surface roughness of the salients and the depressions are separately defined, the surface roughness of claim 1 of the present invention is completely different from the surface roughness disclosed by Toya. Thus, Toya does not disclosed the surface roughness as defined by claim 1 of the present invention.

In addition, Toya does not provide a teaching or motivation for one with ordinary skill in the art to use two different surface roughness values for the salients and the depressions. Furthermore, the reliance on the argument that one with ordinary skill in the art would find the optimum ranges based on routine experimentation is inapplicable for the same reasons as given in section I above in regard to Saeki, i.e, there is no general condition disclose in the art that the surface roughness of the depressions and the surface roughness of the salients are different and the roughness of the depressions is not disclosed in the prior art to be a result-effective variable. Finally, Toya does not provide a teaching or motivation to go outside its value of 12.5 microns for the surface roughness of the salients.

For at least these reasons, reconsideration and withdrawal of the rejection are respectfully requested.

III. Rejection under 35 U.S.C. § 103(a) as being unpatentable over in view of Waldhauer.

Waldhauerdoes not disclose, teach, or suggest a support portion composed of salients having a surface roughness Ra of 0.05 μm to 1.3 μm and depressions having a surface roughness Ra of 3 μm or more when measured for a length of 300 μm.

The surface roughness that Waldhauer is teaching is the surface roughness of the whole surface of face portion. In other words, this surface roughness is the surface roughness of irregularities or undulations formed on the face portion.

The surface roughness as defined in claim 1 of the present invention is a surface roughness of each salient and each depression. Because the surface roughness of the salients and the depressions are separately defined, the surface roughness of claim 1 of the present invention is completely different from the surface roughness disclosed by Waldenhauer. Thus, Waldenhauer does not disclosed the surface roughness as defined by claim 1 of the present invention.

The PTO also argues that the determination of surface roughness for the depressions would have been obvious to one with ordinary skill in the art through routine experimentation. As mentioned above, the surface roughness taught by Waldenhauer is not the surface roughness as defined by claim 1 of the present invention. In addition, Waldenhauer does not provide a teaching or motivation for one with ordinary skill in the art to use two different surface roughness values for the salients and the depressions. Furthermore, the reliance on the argument that one with ordinary skill in the art would find the optimum ranges based on routine experimentation is inapplicable for the same reasons as given in section I above in regard to Saeki, i.e, there is no general condition disclose in the art that the surface roughness of the depressions and the surface roughness of the salients are different and the roughness of the depressions ratio is not disclosed in the prior art to be a result-effective variable. Finally, Waldenhauer does not provide a teaching or motivation to go outside its specified range of 4-16 microinches for the surface roughness of the depressions.

For at least these reasons, reconsideration and withdrawal of the rejection are respectfully requested.

Conclusion.

The PTO has not established a case of obviousness in any of the three rejections set forth. Saeki, Toy, Waldhauerdoes, or any combination thereof does not disclose, teach, or suggest a support portion composed of salients having a surface roughness Ra of 0.05 μm to 1.3 μm and depressions having a surface roughness Ra of 3 μm or more when measured for a length of 300 μm. In addition, the rejections based on the finding of the optimum conditions through routine experimentation are inappropriate because there is no establishment of general conditions in the prior art that the surface roughness of the salients is different from the surface roughness of the depressions and there is no teaching that the surface roughness is a result-effective variable requiring optimization.

Respectfully submitted,

Date 11/22/2006

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CLAIMS APPENDIX

1. A semiconductor wafer treatment member having at least a surface formed with a silicon carbide (SiC) film thereon, comprising a support portion for supporting a semiconductor wafer, said support portion being composed of salients with which said semiconductor wafer substantially comes into contact; and depressions formed with the silicon carbide (SiC) film to provide a coverage area between said salients, said salients being formed with upper faces having a surface roughness Ra of 0.05 μm to 1.3 μm, wherein said depressions have faces having a surface roughness Ra of 3μm or more when measured for a length of 300 μm.

2. A semiconductor wafer treatment member as set forth in claim 1, wherein said coverage area has a ratio of 20 to 90 % to a total area of said depressions.

4. A semiconductor wafer treatment member as set forth in claim 1, wherein said top surfaces of the salients and said surfaces of the depression have boundary portions in the form of curves.

5. A semiconductor wafer treatment member as set forth in claim 3, wherein said boundary portions connecting said top surfaces of the salients and said faces of the depressions in the form of curves.

7. (Previously presented) A semiconductor wafer treatment member as set forth in claim 2, wherein said top surfaces of the salients and said surfaces of the depression have boundary portions in the form of curves.

EVIDENCE APPENDIX

-NONE-

RELATED PROCEEDINGS APPENDIX

-NONE-